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CONTRACT: DOCE-2007-C-0099	
KEY PLAN	

DATE:	DESCRIPTION:
04.16.08	SCHEMATIC DESIGN SET
06.01.08	DESIGN DEVELOPMENT
12.19.08	PERMIT SET
02.27.09	GWP SET
05.26.09	OCGB PERMIT REVIEW
05.29.09	ADDENDUM 1

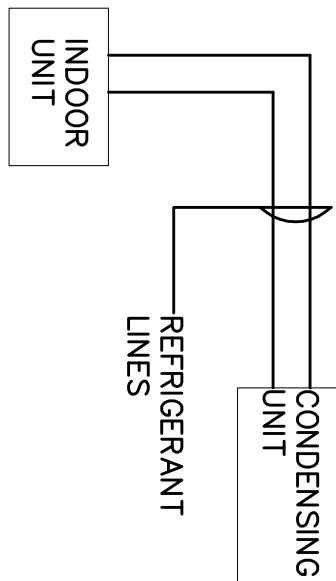
SHEET TITLE:

CONTROL
DIAGRAM
MECHANICAL

M-2.04

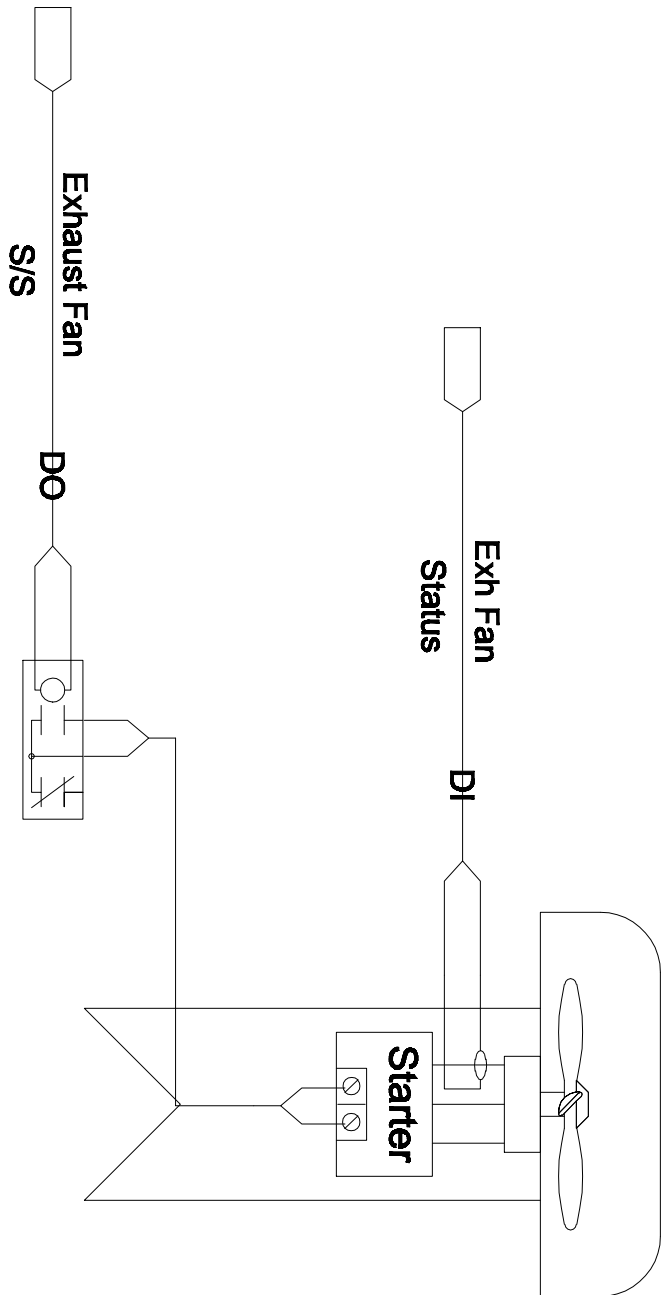
BOILERS AND ASSOCIATED PUMPS

BOILERS SEQUENCE OF OPERATIONS
BOILER – RUN CONDITIONS:
THE BOILER SHALL BE ENABLED WHENEVER:
EXISTING BOILERS CONTROLLER SHALL BE UPGRADED IF NECESSARY TO PROVIDE POINTS FOR NEW DDC CONTROLLER WITH BACKNET INTERFACES.
THE EXISTING BOILER SYSTEM SHALL BE ENABLED TO RUN WHENEVER OUTSIDE AIR TEMPERATURE IS LESS THAN 65 F (ADJ).
TO PREVENT SHORT CYCLING, THE BOILER SYSTEM SHALL RUN FOR A MINIMUM OF 5 MIN(ADJ) AND BE OFF A MINIMUM OF 1 MINIMUM(ADJ) UNLESS SHUTDOWN ON SAFETIES OR OUTSIDE AIR CONDITIONS. THE BOILER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.
PROVIDE LEAD-LAG CONTROL FOR BOILERS 1 AND 2. THE LEAD BOILER SHALL MAINTAIN SUPPLY WATER TEMP. SET POINT. IF THE LEAD BOILER FAILS, LAG BOILER SHALL BE ENERGIZED. PROVIDE WEEKLY ALTERNATION OF THE LEAD BOILER.
BOILER SAFETIES
THE FOLLOWING SAFETIES SHALL BE MONITORED:
1. BOILER ALARM
2. LOW WATER LEVEL
PUMPS:
PUMPS – RUN CONDITIONS:
PUMPS SHALL BE ENABLED WHENEVER:
DDC SYSTEM SHALL START/STOP THE P-1 & P-2 BASED ON THE TIME AND DAY PROGRAM. P-1 & P-2(STANDBY) SHALL BE STARTED WHENEVER THE OUTSIDE AIR TEMPERATURE IS BELOW 55 DEGREES (ADJUSTABLE). P-1 AND P-2 SHALL PROVIDE ALTERNATING DUTY CYCLING.



SPLIT A/C SYSTEM

A/C-1
SEQUENCE OF OPERATION
EMG SYSTEM SHALL MONITOR START/STOP AND STATUS. SPACE THERMOSTAT SHALL ENERGIZE DX COOLING AND CYCLE UNIT FAN TO MAINTAIN SPACE SET POINT. THE CONTRACTOR IS TO PROVIDE ALL REMOTE CONDENSING UNIT INTERLOCK WIRING.
ALARMS SHALL BE PROVIDED AS FOLLOWS:
INDOOR/OUTDOOR UNIT FAILURE: COMMAND ON, BUT THE STATUS IS OFF.
INDOOR/OUTDOOR UNIT IN HAND: COMMAND OFF, BUT THE STATUS IS ON.



GENERAL EXHAUST FAN

NOT TO SCALE
EXHAUST FANS
TOILET/ELECTRICAL ROOMS SEQUENCE OPERATION
TOILET ROOMS: EMCS SHALL PROVIDE TIME OF DAY ON/OFF AND RUN STATUS INDICATION. DURING SMOKE ALARM MODE FANS SHALL BE DE-ENERGIZED.
ELECTRICAL ROOM: EMCS SHALL MONITOR SPACE TEMP, AND PROVIDE TIME OF DAY ON/OFF AND RUN STATUS INDICATION.
ALARMS: HIGH SPACE TEMP. ABOVE EQUIP MANUF. RECOMMENDED OPERATING TEMP DURING SMOKE ALARM MODE FAN S SHALL BE DE-ENERGIZED.
ALARMS SHALL BE PROVIDED AS FOLLOWS:
EXHAUST FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
EXHAUST FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
EXHAUST FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEED A USER DEFINABLE LIMIT.

CHILLERS CH-1 AND ASSOCIATED PUMPS

CHILLERS CH-1, CH-2 SEQUENCE OF OPERATIONS
CHILLERS – RUN CONDITIONS:
THE CHILLERS SHALL BE ENABLED WHENEVER:
CH-1: DURING NORMAL OPERATING HOURS WHEN THE CHILLED WATER COILS REQUIRE COOLING AND THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 54(ADJ).
CH-1 SHALL OPERATE WITH CHILLED WATER PUMPS SYSTEM. CH-1 ENTERING CHILLED WATER TEMPERATURE SET POINT SHALL BE 56 F. LEAVING WATER TEMPERATURE SET POINT IS 42 F.
CH-1 CONTROLLER SHALL PROVIDE POINTS FOR MONITORING THROUGH DDC CONTROLLER W/ ALL SAFETY CONTROLS APPLICABLE.
WHEN CH-1 IS CALLED UPON FOR SERVICE DURING (NORMAL OPERATING HOURS) ASSOCIATED CONTROL VALVES SHALL GO THE OPEN POSITION.
WHEN CH-1 IS IN THE NONE OPERATION MODE ALL ASSOCIATED VALVES SHALL GO TO THE CLOSED POSITION.
PUMPS CWP-1 & 2(STAND-BY)
PUMPS – RUN CONDITIONS:
DISTRIBUTION PUMPS SHALL BE ENABLED/RUN: WHENEVER CH-1 IS CALLED UPON TO RUN.
PROVIDE ALTERNATING DUTY CYCLING

CONTROL DIAGRAM MECHANICAL

SCALE: NO SCALE